design and, within this chaste frame, the elephants, princes, trees and *nat* spirits waved and bounded in profusion. At the base of each bowl was a felicitous salutation inscribed on a smooth ground.

Lacquer is another industry now turning out cigar and trinket boxes, table mats, bowls and other articles for the modern market, but also continuing to supply all Burmese households with objects for daily use. When my father was stationed at Magwe, we went up the river to Pagan and from there by bullock cart to the village of Nyaung-U where the best Burmese lacquer is made. A frame of bamboo strips woven closely is covered and filled out with a mixture of cow-dung and paddy husk, and given a thick coat of black *thitsi*, wood-oil. Traditional designs are engraved on this when dry, and successive coatings of thitsi mixed with colouring are put on, the bowl being allowed to dry and turned on a lathe to take off the colour not required in the pattern in between each coating. The finished product is polished smooth and so flexible that a bowl can be bent till the opposite sides of its rim touch. We had lacquer boxes, *yun-its*, of great size to hold my father's turbans and my mother's scarves, round ones to hold combs and tresses for my mother's hairdressing, drinking mugs, betel boxes and many others. We had *kyauk-ka*, a more solid lacquer of plain red and black, for food carriers. with plates and cups to match.

Wood seems part of the fabric of the Burmese craftsman's being. The wealth of the forests which provided teak, pyinkado, ingyin and a host of other woods for lasting structures; the perfect medium they afforded to the chisel, gouge and mallet of the carver, and the traditional forms of architecture which offered vantage points for the display of superb craftsmanship all combined to make wood-carving the most lively of Burmese arts. But wood-carving cannot be seen to advantage in domestic articles; we had carved wooden frames for photographs of monks and of Grandfather, carving on the screen which walled off the altar room, but Burmese carvers in wood had never devoted their talents to the cutting of small articles. Teak and *yamanè*, the two woods usually carved on, have a coarse grain in which fine detail cannot be rendered. Beginning from the days when the tradition was to reserve carving for the wood of sacred structures only—palaces and monasteries—the craftsman had put all his skill into animating the gables and eaves of tiered monastery roofs, palace walls and ceilings, with a riot of living ogres, nats, dancing spirits and birds surrounded by leaves, flowers and scroll-work which did not leave an inch bare.

Still, the village craftsman with a talent for work in wood does not lack scope in his rural surroundings.

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CHAPTER XXVII

LACQUER WARE

● 322 285 FOR a long time it was assumed that Japanese and Chinese lacquered goods were simply papier-mâché. A popular fancy for the ware has brought to the knowledge of all who care for the information that it is really wood of different kinds painted over with the juice of the urushi tree. Should fashion ever inspire a similar enthusiasm for Burmese productions of the same kind, it is probable that it may be supposed that these also are composed of solid wood, and people will wonder at the extreme thinness and flexibility of the finer specimens. But it is only the coarsest ware which is thus produced. All the better boxes and cups are made of a woven basket-work of strips of bamboo; the varnish used on them is, like the Japanese lacquer, the sap obtained from the stem of a tree, and has nothing whatever to do with the insect-produced lac, such as English varnishers employ in solution with alcohol. I am no botanist enough to know whether the urushi (*Rhus vernicifera*), the Japanese tree, is identical with the Burman thi'si (*Melanorrhœa usitatissima*), or even whether it is of the same genus or order. Thi'si (literally wood-oil) is dark in colour from the moment it is gathered, whereas the urushi sap is described as being light yellow when first extracted, and only turning black after considerable exposure to the air. The urushi has been cultivated by royal order for hundreds of years in Japan; but in Burma, though the Forest Department declares the thi'si a reserved tree, there is no attempt at organised cultivation, and the thi'si-bin grows wild in the jungle. Not even near Nyaung-u, where nearly

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2:Scott G-5 (1870's-1909)1910 AP1 Burma
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every household in the town is occupied in the trade, is there any attempt at regular planting of nurseries. Nevertheless it is plentiful enough, and affords a magnificent spectacle when it is in flower—a huge forest tree covered so thickly with creamy-white blossoms that the leaves cannot be seen. The flowers have a fragrant scent not unlike that of apples, and the needy and practical Burman often makes a very acceptable curry of the buds. In full-grown trees the average height to the first branch is thirty feet, and the ordinary girth six feet from the ground is nine feet. Charcoal-burners have a predilection for the wood, which would not meet with approval in Japan; and it is much used for anchors and tool-helves, being very close and fine-grained. It is too heavy to float when green, but dried it is not particularly weighty. The sap may be collected at all times, except when the fruit is on the trees, from Pyatho to Tabaung—the first three months of the English year. Then it is thin and does not produce such a brilliant polish. The mode of collection is simple enough. Incisions are made in the stem, and the sap trickles into bamboos placed to catch it. When it is to be kept any time there must be a depth of two or three inches of water on the top, otherwise it would dry up and become solid. The water, however, does not improve it. The best varnish, called thi'si ayaungtin, is that which has been just drawn from the tree; the second quality contains twenty-five per cent of water, the inferior as much as fifty.

The articles lacquered are chiefly drinking-cups and betel-boxes, the latter consisting of a cylindrical inner case, in which are fitted two or three trays for holding the lime, betel-vine leaves, cutch, nuts, and other ingredients for betel-chewing, the whole covered by an outer lid reaching to the bottom of the inner case. Ordinary kôn-it, betel-boxes, are three or four inches high and two and a half to three in diameter. Articles of the same shape are made of all sizes up to a couple of feet or more in height, these last being used for holding clothes and women's working materials. The bi-it, ladies' toilet-boxes, are often the most delicate and carefully worked. The actresses always carry splendid specimens about with them to contain their combs, oil, scent,

2:Scott G-5 (1870's-1909)1910 AP1 Burma
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the white lead and thana'kha for the complexion, and a few tresses of false hair. Other articles are the pyramidal tamin-sa-ôk, used for carrying food to the monasteries and the pagodas, fashioned somewhat in the style of the sacred spires, of five or seven roofs, and of all sizes from eighteen inches to the huge things, the height of a man, which the king sent under the royal umbrellas to the Arakan pagoda in Mandalay. Byat, platters of all sizes, up to the gigantic circular tray as big as a small table, used for dishing up the family dinner, are always made of wood, like the Japan ware. The people do not think much of them, and they are therefore almost always quite plain, either black or red. There is no inferiority to the Japanese in capacity for sketching fantastic designs. The future may see great developments in this branch of the art, but at present it is practically untouched. It is unfortunate that enterprise so far has taken the form of making "peg" tumblers and cigar-cases instead of developing national forms.

The process of manufacture is as follows: Little basket-like boxes of the required shape and size are woven of fine bamboo wicker-work, upon round chucks of wood prepared and firmly fixed for the purpose. The bamboos used, which are usually split and cleaned by the women and children, are of different kinds, that called myinwa being the most highly esteemed. Similarly, the yet, or woven basket-work, is of different degrees of excellence, the kyaungleinyet being the finest. Some of the Shans and better workmen at Nyaung-u are celebrated for the delicacy of their work. On this is then evenly applied with the hand (so that the slightest particle of sand or dirt may be at once detected) a coat of the pure wood-oil. This is then put away to dry—not in the sun, which is apt to pucker and blister it, but in a cool airy place. Some careful workmen have often an underground room prepared specially for the purpose. After three days it is quite dry and hard, and is then liberally and evenly covered over with a paste called thayo. This is made in a variety of ways, the commonest being a mixture of finely-sifted teak sawdust, thi'si, and rice-water. But instead of the sawdust, or often mixed with it, finely-ground bone-ash, or paddy-husk burnt and strained through a cloth,

2:Scott G-5 (1870's-1909)1910 AP1 Burma
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is kneaded in. In the coarse, common articles for every-day use, tempered clay and some other materials are often used; but this being thicker and less putty-like, is apt to scale and come off in flakes, especially if at all roughly used. This thayo is allowed to dry quite hard, and the box is then fastened to a rude lathe, which is turned with one hand, while the other is employed in polishing the box. This smoothing-down is effected with sifted ashes, or sometimes with a piece of silicious bamboo, which is as good as fine sand-paper. When this is done the box is ready for a fresh coat, which almost invariably consists of a mixture of finely-powdered bone-ashes and thi'si. This, after drying, is polished in the same way as before. We have now a box of a brilliant glossy black, in itself very pretty and fit for use anywhere. But this is only the end of the first stage; none but the byat and common wooden platters are left in this state.

The ground colour of the great majority of the boxes and cups is red; but some of the black wood-oil is required to rise through it and define the pattern. This is effected in a most ingenious way. The black box is put on the lathe again and turned round, while the lines and spots, and the form of the black pattern generally, is sketched on with a sut, or split stile, charged with thi'si. The drawer has no guide but his eye. There is no preliminary mapping out, yet a practised hand will never make a mistake and spoil a box. The fresh thi'si thus put on stands up above the general level of the surface. The whole box is now covered with red paint; and when this is dry the box is put on the lathe again, and the operator turns it round and rubs it steadily with ashes. By this means the red paint is removed where the lines of thi'si rise above the general surface, and the black pattern stands out clearly on the red ground. A quaint chequer-work is also always produced, where the slightly projecting edges of the bamboo wicker-work raise the black wood-oil through the vermilion layer. Still, however, it is not finished. No box is complete without three colours; and this last shade is applied in an equally simple and effective way. The desired pattern is incised with a graving-tool called a kauk—often nothing

LeScott G-5 (1870's-1909)1910 AP1 Burma
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531 more elaborate than a pin firmly tied to a piece of stick. Then the whole box is coated over with the new colour, and this is in its turn polished off on the lathe till nothing remains but the lines of the engraved pattern. If another colour is required, a similar process is gone through.

531 When the design is complete, a clear varnish of another
285 vegetable oil, called shansi, with a dash of thi'si in it, is
322 applied all over as a last touch, unless indeed a very high polish is required. This is effected by rubbing gently with the powdered petrified wood found so useful in imparting a gloss to the alabaster images. The patterns are none of them very intricate, and are handed down as heirlooms from father to son, so that the same family will have all its ware made on a few clearly-defined models, and there is no fear of "spoiling a set." The invention does not as yet soar beyond scroll-work and line-figures of infinite variety; but should a foreign demand spring up there would be no lack of skill to meet it; just as the Rangoon tattooers have taken to copying pictures out of the *Graphic* on English sailors' breasts.

The supreme test of excellence in the manufacture is when the sides will bend in till they touch without cracking the varnish or breaking the wicker-work. Connoisseurs can discriminate between Shan, Nyaung-u, and the ware of other places, by the shadow thrown on the inside (which is varnished plain red or black), when the cup or circular box is held at an angle of forty-five. Three colours only are used besides the black groundwork; but variety is produced by graduating their intensity of shade. They are red, green, and yellow. Red is prepared from finely-ground vermilion mixed with shansi. The Nyaung-u people prefer a vermilion called hinthapadi ywè, prepared by themselves, to that procured from China and used elsewhere. The home-made stuff seems to be much brighter in tint. Myeni, red ochre, is used only with the coarsest work. For yellow, yellow orpiment is ground down and washed several times until a pure, impalpable powder remains. This is mixed with a pellucid gum, and when required for use, worked up with shansi. Green is obtained by adding finely-ground indigo to the yellow orpiment until the required tint is

2:Scott G-5 (1870's-1909)1910 AP1 Burma
Burmese AP4

obtained. Red and yellow are, however, always the predominating colours. 531 285 322

The thi'si is turned to a variety of other uses besides the manufacture of lacquer-work; applied to wood, or to marble and clay images, it enables them readily to take on gilding. It is used as a waterproof varnish to all the umbrellas in the country, and makes them as impervious to rain as if they were made of wood, while it protects the palm-leaf against the rays of the sun, which otherwise would burn it as brittle as an egg-shell. All the racing and war-boats in Burma are painted with it, and the best caulking in the world could not make them more water-tight. Finally, boiled down thick it furnishes the material for delineating the square heavy characters of the sacred kammawa-sa, the ritual for the admission of brethren to the sacred order. 531 249

The oil is usually put in the sun for a short time before being used, and it is at first of a light brown colour, soon darkening into a brilliant black. It seems to be of a particularly mordant character, and raises huge blisters on the hands of some people, leaving marks of the ashy-white colour suggestive of leprosy. Hence strangers suspected of [753] being afflicted with the terrible malady always declare they are thi'si workers; and many people avoid these latter, in case they might find they had been holding communication with an outcast. A lotion composed of fine teak-wood saw-dust, mixed with a little water, is used as a cure for blains. [757] Many of the workmen periodically swallow small doses of the wood-oil, under the impression that it acts as a preventive. The capriciousness with which the varnish acts, leaving some men quite unharmed and punishing others severely, has given rise to a proverb in Nyaung-u:—

Thi'si is a witness
To a burgher's fitness;
If bad, he's marked an outcast;
If good, not long can doubt last.

25: Ferrars E-5 (ca. 1890) 1901 APl Burma
Burmese AP4

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120. CLEANING RICE WITH THE HAND-MILL.

in every town. A basket (*din*, bushel) of cleaned rice (*sau*) costs three to four rupees, and lasts a man about a month. The loss of volume in cleaning is about twenty-five per cent., and the cost of the unhusked grain about one-third of that of rice. For cakes and sweets, rice is ground with water in the Indian stone hand-mill. After first soaking, it is passed through the mill repeatedly until it forms a creamy fluid, which is strained and used while fresh. Wheaten bread is a novelty.

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The houses in Burma are mostly built of bamboo. The giant bamboo (*wabó*), a denizen of the evergreen hills, is cultivated in the plains for house-posts and masts and side-buoys of boats. Its culms attain a height of eighty feet and a girth at the butt of two feet. Every bamboo jungle supplies the rest of the material for the house. No tools are needed for bamboo work, but the universal *dá*—a sabre, trimmer, chopper, according to its proportions (No. 231). With the *dá* the bamboos are hewn, split open and slit into withes (*hní*) for lashing. Thin-walled bamboos are opened out into broad planks for the walls of the houses (*tayán*). Stout thick-walled bamboos are shaped into narrow planks for flooring, or the floor is laid of round bamboos laced down at intervals. Loose planks of wood are becoming general for floors, even in houses built of bamboo (p. 119). Every Burman can handle the *dá*, but not so expertly as the hill people. The house-posts, floor-girders, and principal frames are frequently of timber, and outlast several relays of the bamboo-work, which decays in a few seasons. The inducement to keep a material clean and neat which has soon to be replaced is not great, and engenders negligent habits. In the better houses, bamboo is only used for the walling and the roof rafters.

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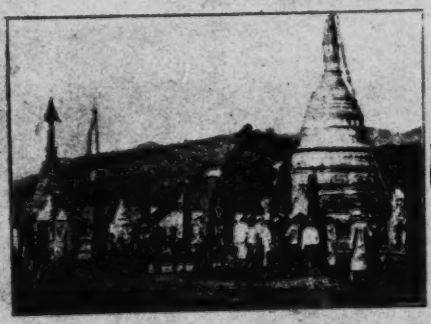
121. WINNOWING GRAIN IN THE WIND.

25; Ferrars E-5 (ca. 1890) 1901 APl Burma
Burmese AP4

122. CUTTING GIANT BAMBOO (WABO).

and the roof-rafters. Straight trees are selected for posts, and are either left plain, or the sapwood is dressed off, or they are dubbed octagonal; the timbers are rough-hewn with the *dâ*. Posts of hard and durable wood (*pyinkadô*) are also squared, and the scantlings for the timbers cut with the saw. A special significance attaches to the posts of the house. It is thought unlucky if birds alight on them before they are roofed in. Sham bows and arrows are set at the heads of the posts to scare them (*lugemmana*). Besides the miniature bow-and-arrow stuck in bazár goods to scare crows, this is the only form in which the long-bow and arrow survive in Burma; in practice, arrows are used with a crossbow (No. 204) and pellets with the plain bow (*le*), and that not extensively. Another curious custom is the one of laying a piece of cloth between the head of the post and the wall-plate as a propitiation to the *nat* of the tree (p. 187). Before the large posts of temples are reared, their heads are hung with offerings, which the workpeople afterwards share among themselves. The front bays of the house have a floor only a few feet off the ground (*kyanneing*)—unless where the flood-levels require it to be higher—making a verandah, the common or unenclosed portion of the house, free to strangers. The back bays have a floor about four cubits off the ground or above the lower floor. A bamboo or wooden ladder connects the floors. The upper floor is enclosed all round, and has one or two bays partitioned off. A pent-roof covers the cooking-place and grain-bin, where the rice-pounders and implements are stored as well; or else there is a shed for



123. REARING THE POSTS OF THE WUT.

25: Ferrars E-5 (ca. 1890) 1901 AP1 Burma
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219. ROPE-WALK.

inner side is brightly decorated with floss silks. Gilt umbrellas (*shwe-dî*) are dedicated in the *kyaung*, but are not actually used. The white umbrella (*thbyu*) is the emblem of sovereignty. The *thbyu* is set above the images of the Buddha and above the remains of the *yahán*, who are assumed at their death to enter upon a higher spiritual stage. The metal canopy surmounting the *zedi* is a conventionalised *tî* (No. 232). Of late, European umbrellas have become a staple import of Burma.

Lacquer-ware vessels and utensils—light, durable, and watertight—are made with the help of *thissi*, the exudation of the bark of *Melanorrhœa usitatissima*, a common tree of the *in* forest. The gum blackens to jet on exposure to the air. It dries slower than the "Japan black" of commerce, but is much tougher; it sells for two to three rupees a viss. *Thissi* is applied to wood turnery and bamboo wickerwork, either plain or with pigments, generally with vermilion. The commonest lacquer goods are platters (*byat* and *daunglan*), which are turned of teak or *yamane?* wood and given two or three coats of *thissi*. After the platters, the principal article of lacquer-ware is the betel-box (*kun-it*). Coarse lacquering is done everywhere in the dry region, but the betel-box industry is peculiar to Pagán. The advantage of lacquer-ware and of a deep cover for the betel-box, is to keep the green leaf fresh At first sight. it appears incredible that these exact cylindrical boxes with their trays and covers, fitting as if each piece had been turned out of the block, should start from a wicker-work frame. Yet so it is; the models are plaited so true that the rest

220. HILL-PEOPLE TWISTING ROPE.

25; Ferrars E-5 (ca. 1890) 1901 APl Burma
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221. UMBRELLA MAKERS.

of the work can be done on a lathe. To prepare the wicker for lacquering, it is first given a "rough-stuffing" of fine clay to fill the interstices. The work is then painted with *thissi*, which penetrates and toughens the clay and binds the fibres of the wicker. When the *thissi* has set, which takes several days, the work is put on the chuck of a bow-lathe and ground smooth with a fibrous stone—a petrifaction-product. Varnishing and grinding are repeated till the surface is smooth, colour being added to the later coats. Then a coat of contrasted colour is given, and when the varnish is about half set, the pattern is chipped with a metal style through the fresh layer to the hard lacquer beneath. After the work has hardened, the patterns are embellished by scoring rings through the layers, with a tool like a carpenter's gouge, so as to bring out the underlying contrasts. The patterns are arabesques and conventionalized figures.* Subject designs are also executed (No. 224). Finally the lacquer is polished with buffs of graduated fineness. A peculiarity of *thissi* is that it sets hardest in a moist atmosphere. Every manufacturer has an underground cellar—a thing almost unknown in Burma—for the wares to harden in. Pagán, the centre of the industry, is at the same time the driest locality of the dry zone. The finest lacquer, which is only made by a few highly-skilled workmen, is so elastic that the lips of a cup may be brought to meet without the ware cracking. As much as twenty-five rupees is paid for a cup of such quality. The ordinary ware has not the tenth part of this elasticity, and sells for one to ten rupees a box. The deep cover of the betel-box is the traveller's ordinary drinking-cup.

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222. LACQUER-WARE MANUFACTURE.

* See the end-papers of the binding of this volume.

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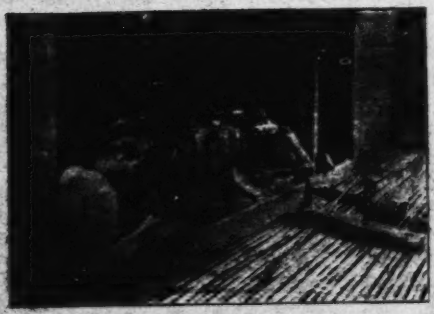

223. SCORING RINGS ON LACQUER-WARE.

Thissi also forms the vehicle of a putty, with which mosaic of many-coloured mirror-glass is cemented together. This is used for the thrones and other appointments of the palaces, temples, and *kyaung*. Whole ceilings and walls are ornamented in this way (*thayó*). The mosaic is set off with gilt mouldings. The work, though often tawdry, is sometimes rich and impressive, both as to design and colour (*Frontispiece*).

Foot-gear used to be of the nature of luxury in Burma. In houses and boats people always go barefoot. But in many parts of the dry zone the thorny woods make sandals a necessity. The common material is raw buffalo-hide, covered on top with woollen cloth and having cloth-covered straps. The straps come from the sides, near the hollow of the foot, and arch over to the spot where the toe-post of the Indian patten is set. Tanned leather slippers of European shape made by Chinese are now ousting the Burman sandal and wood patten.

Most of the well-known metals are found in Burma. Before the importation of pig, bar, and sheet metals, and of metal manufactures from the West began, Lawá settlers from Zimmè (Chiengmai, *Tyin-mai*) practised the smelting of iron, copper, tin, zinc, and lead. These industries have disappeared. Metal goods used to come in from the Shan States and China, but the principal manufacture was carried on by Burmans and Talaings. Even at present, the only heavy metal goods imported are iron cauldrons, anvils, sledge-hammers, and vices—besides machinery. Saws, files, chisels, augers, hinges and locks, nails and screws, dies and taps, pocket-knives and fancy metal goods, are imported. Bells for the temple precincts were, until recently, the heaviest castings made, but of late a

224. ETCHED DESIGN ON LACQUER (HNGEP-PYITTAUNG).

25: Ferrars E-5 (ca. 1890) 1901 AP1 Burma
Burmese AP4

325 rivalry has sprung up between the towns in casting large images. For the best bells, a bronze consisting of four parts copper to two of tin is used. The alloy is enriched—as they fancy—by pious donors who cast silver into the melting-pot. Ordinary bells are made of brass; images also are cast in brass. The

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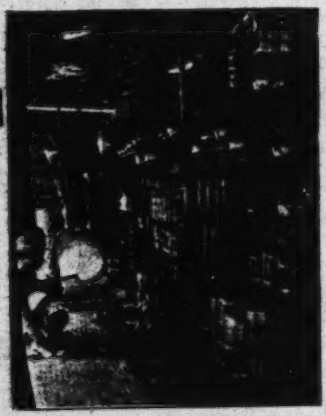

228. LACQUER-WARE DEALER.

229. SANDAL-MIXER.

alloy consists of about 70 per cent. copper to 20 of zinc, and 10 of lead. The image or bell is modelled in wax as thick as the metal is intended to be, upon a core of clay. A shell of clay is plastered over the wax with the needful supports between the clay surfaces at intervals. When the clay has dried, the mould is heated and the wax run out, ready for casting. The crucibles are of clay, of about two hundredweight capacity, and are heated by a forge-blast. The Burman castings are seldom sound, and never so fine and clean as those of the Shans. Though the bells are defective in tone, the *kyisi* (Nos. 22, 86) and the round, hammered

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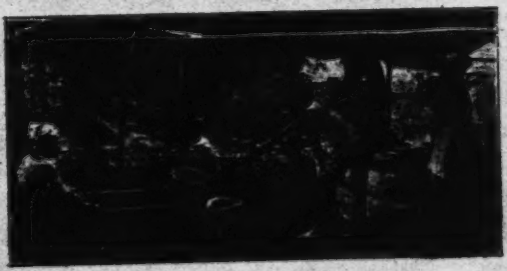

227. BRASS-MADE FOUNDERS.

25; Ferrars E-5 (ca. 1890) 1901 APl Burma
Burmese AP4

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348. DEFILE BELOW THE GREAT RAPID OF THE SALWEEN.

which it is hammered is obtained from bamboo-fibre.

In Burma the idea still prevails that gold may be compounded from baser metals or the quantity of fine gold augmented by their means. Alchemists are found in every town, who experiment in the hope of success or practise on dupes who furnish the gold that is to be increased. A furnace and blast is the chief appliance of the laboratory, and the potent agent relied upon is mercury. Ingredients of every sort, animal, vegetable and mineral, are experimented with, under the influence of charms and cabalistic forms, whence the name for alchemy, *ekkaya-tû*. The business is under the ban of religion, not alone as being actuated by greed (*lawbà*, p. 44), but because primitive Buddhism eschews everything mystical and occult. The operations are carried on at night for secrecy. Reputed adepts are found among the class of recluses called *yathé*, who from their life in the wilds are supposed to penetrate the arcana of nature.

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Wood-work was greatly restricted until better tools were imported. Planks and scantlings used to be laboriously prepared for boat-building and for palaces, religious edifices, and the houses of the great. Excepting the inner gates of the masonry temples, wood-work over a century old is scarce. But before the Burmans possessed the means of turning their timber to account for themselves, the country had become noted for its stock of teak. Burma possesses many valuable woods, but the pre-eminence of teak is such that for general purposes *timber* had come to mean always *teak* timber. Teak possesses the advantages

349. TEAK-TREE OUT OF LEAF (MARCH).

25: Ferrars E-5 (ca. 1890) 1901 APl Burma
Burmese AP4

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944. MIXED HILL-CROP OF RICE, SESAMUM, AND TEAK, IN SEPTEMBER (p. 149).

of being nearly all heart-wood, having considerable strength, with moderate hardness and weight, working easily with axe, saw and chisel, taking nails, and above all, not rusting nails or iron in contact with it. It has a serviceable brown colour and an odour by which it may always be distinguished, due to the presence of an oil which repels the attacks of insects, notably of the termites, and which protects it from decay. Teak is in short the prince of eastern woods. At the end of the eighteenth century, teak was already being worked out of the Burma forests and brought to port, where the foreign shippers had established saw-pits for squaring the logs. The steel pit-saws found their way into trade and gave an impetus to wood architecture, of which the ecclesiastical buildings of Burma are the chief examples. Timber-traders started building teak ships in Burma, employing Chinese carpenters. This business has been abandoned, but lighters are still built.

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The teak-tree (*tectona grandis*) occurs in patches of the dry mixed forest, the forest namely of which the principal element is a deciduous bamboo, with timber trees of fifty or more deciduous species scattered through it. Of these species about half a dozen produce serviceable timber. The bamboo-stools send up their culms to heights of forty and sixty feet in the course of a few weeks, before their branchlets and leaves appear. By means of this the bamboo has the advantage over all other vegetation. The seedlings of trees have to struggle up under its cover. At intervals of twenty to thirty years the bamboo species flower, to grow again from seed. Then is

948. FLUE OF FACTORY DRIVEN TEN YEARS.

25: Ferrars E-5 (ca. 1890) 1901 APl Burma
Burmese AP4

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392. ROPE-STATION ON THE SALWEEN (KYODAN).

current, a remarkable device is employed. Two ten-foot handspikes, with a shoulder two feet above the point, have mooring-rattans from each end of the raft, one hundred feet long and an inch thick, bent on to them. One of these is sent ashore from the forward end of the raft and worked like a plough in the bank, going deeper as the raft slews round and the tension increases, and so stopping its way by degrees. If the first attempt fails a second is made from the other end of the raft, which is then the forward one. Arrived in port the logs are dragged up the mud-banks by elephants. But when the path is blocked, a powerful elephant sometimes carries a log bodily. The whole of the operations of bringing the timber to market are combined by a timber-broker (forester, *thiggaung*).

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Teak cuts readily, though it blunts the tools very soon. There is little waste. Sawn planks are displacing bamboo for the better-class houses. Sawyers earn from one-half to one rupee a day. The indigenous carpenter's tools were a small adze (*pègôt*), chisels and gouges (*sauk*), awls (*hun*), and a rough saw (*khwa*), besides *dâ* and axe (*paussein*). The Burman adopted the Chinese plane (*yuk-haw*, "selecting-shave") with the Chinese straddle bench. The English carpenter's rule is also general. When the impulse to good house-building was given by the production of cheap planks, the immigrants from China got the whole of the work. The Burmans have begun to oust them from the heavy carpentering and from the joinery as well. Ordinary Burman carpenters earn ¾ rupee a day, the better workmen 1 to 1¼ rupees a day, compared with the Chinaman's 1½ rupees. The wood-work is left

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[197]
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341
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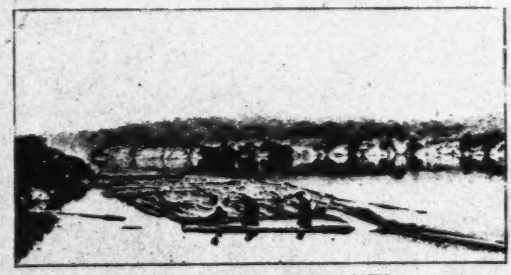

393. BINDING THE LOGS INTO RAFTS.

25: Ferrars E-5 (ca. 1890) 1901 AP1 Burma
Burmese AP4

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264. TIMBER-RAFT.

plain or is oiled with crude petroleum. A wooden house of the modern Burman pattern costs from three hundred rupees upwards; a bamboo house only twenty to sixty.

The Burman turning-lathe is of the usual primitive type; two poppets sliding in a bed, with centres to hold the work, round which a cord passes from the simple treadle-bar to a springy lath or bamboo overhead. But of late, mandril-lathes have been constructed after models in the steam-mill workshops (No. 187). Mechanical construction has great attractions for the Burman, and is stimulated by the high wages of labour. The foremen sawyers at the steam-mills are Burmans, the other hands natives of India. Menders of clocks and sewing-machines are in all the towns. An engine-erecter, who had set up machinery in most countries of Europe and Asia, said he had nowhere met the same natural aptitude for handling machinery as in Burma (*cf.* p. 10).

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The floral wood-carving of Burma is remarkable for its freedom and spontaneity. Rich as the floral tracery is, the animal grotesques are laboured and deficient in fancy. The carving is done in teak-wood when it is meant for fixtures; otherwise, *yamanè* is preferred. The tools employed are chisel, gouge, and mallet. The design is traced on the wood with charcoal, gouged out in the rough and finished with sharp fine tools, using the mallet for every stroke. Teak-wood and *yamanè* have a coarse grain, in which fine detail cannot be rendered. Small and delicately elaborated figures are carved in sandal-wood and also in ivory. Whole tusks are carved over with figures of the Buddha and are dedicated in the *kyaungs*. In some of these the figures are modelled in a single piece under an

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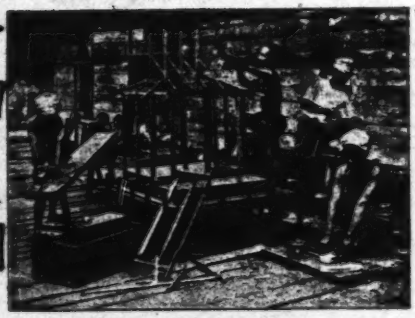
265. SAWING UP THE LOGS.

25: Ferrars E-5 (ca. 1890) 1901 AP1 Burma
Burmese AP4



267. BURMAN CARPENTERS.

arbour of tracery, which entirely encloses them. Ivory hafts and scabbards of daggers and sabres are ornamented in the same way. The ivory carving is not polished.

The conventional flat design, painting and embroidery exhibit affinities to the Indian decoration of the ancient temples (Nos. 94, 272). The anachronisms and other naiveties of our mediæval designers are paralleled in modern Burma; witness the introduction of British officers with their field-glasses in the design of the Prince of Pagán destroying the monster at Hngep-pyittaung (No. 224). The medium used for painting is a coarse tempera. From the labels attached to European goods, many of which are excellent in design and colour, lessons in colouring and perspective have been learned. From photographs, ideas of accuracy have been gathered, and from illustrated newspapers, ideas of composition. Neither carver nor designer ever uses a model. The painter of No. 433 confessed that he had not seen the place himself; he had it described to him. In pure design without colour, the *shwezawd* work is the best. It is a kind of drawing in lacquer, which appears black on a gold ground (No. 96). Of late the Burmans have attempted cuts on type-metal for illustrations of books (No. 276). They are executed with chisel and punch; the graver is unknown.

268. BURMAN TURNER.

Ancient inscriptions are rare in Burma, although the *thamding*, or depository for slabs recording the circumstances of religious foundations, is a recognised institution. In many of the *thamding* at Pagán may be seen the ancient *Pâli* square character, of which the Burmese round character is a development. The square character is preserved in the *kambawd* (No. 46). The late King Mindôn Min caused the whole of the Pâli text of the Tripitaka to be

25: Ferrars E-5 (ca. 1890) 1901 AP1 Burma
Burmese AP4

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269. BURMAN WOOD-CARVER.

engraved on 729 marble slabs, 4 feet by 3 feet. These, set under as many stucco canopies, are known as the *Kûthodaw* or *Lawkama-yazin* — the royal work of merit (No. 385). They constitute the most important of the King's religious foundations. A number of years were spent by a committee of learned *yahân* in editing the text. Certain portions have since been transferred to type, and in time the whole of this text will be available in print. The development of the round Burmese character out of the square Pâli was favoured by the nature of the material used for writing on—the leaf of the *pe* palm. The fan-leaf is split into its segments, which are piled, and dried under pressure. Then they are trimmed even, and punched with holes to file them by. The leaf is ruled with turmeric, and the writing is done with a sharp steel style, which scratches through the hard epidermis to the spongy layer underneath; both sides are written on. The transverse strokes tear the fibre more, and leave a plainer mark, which leads to a minimising of longitudinal strokes. When the writing is complete, the wooden covers are lacquered, the edges of the leaves gilt, and their faces oiled with crude brown petroleum, which both preserves the material and brings out the writing. The oiling is repeated from time to time. The leaves become dark and friable in fifty years, and the writing hard to decipher. Manuscripts over two hundred years old are scarce. Copyists are paid one rupee per *inga* of ten leaves, the work of a day or two, according to their expertness. Until rag-paper began to be imported, the paper in use was

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270. CARVED SCENE FROM ZAT.

25; Ferrars E-5 (ca. 1890) 1901 AP1 Burma
Burmese AP4

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287. COUNTRY SALE-DEPOT.

about three million rupees. At present both wood-oil and crude earth-oil are being superseded by kerosene. The crude earth-oil is used for preserving woodwork. But its place is being taken by the residues from the local refineries, now established in Rangoon.* Travelling pedlars hawk the silk goods of Burma Proper and all sorts of fancy nicknacks from the sea-ports to the villages of the interior. The approaches to the temples are favourite resorts of stall-keepers of all sorts of wares, especially of wax-tapers, plain and moulded, gold leaf, coloured paper flags and flowers for the votaries to decorate the shrines with, and toys wherewith to gladden the hearts of children—an act of merit befitting the shrine of religion in this cheerful land. In sad contrast to the gaiety of the booths is the spectacle of the lepers who beg for alms. The prominence of these unfortunates at such places creates a disproportionate impression of their numbers, high as these are (p. 41). The offerings dedicated on the occasions of *Shinldung fêtes*, festivals, and funerals, make the trades of manufacturing and distributing the requisites of the *kyaung* very important ones. The wares collected in the *parôikaya* shop used to be representative of the manufactures of Burma. But of late, imported goods—crockery, glassware, lamps and clocks—have become a regular part of the *kyaung* furniture, and are offered in meaningless profusion. This has helped to bring the *parôikaya* trade into the hands of foreigners.

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Every year, after the floods have subsided, Burman dealers establish dry-

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288. ROLLING CHEROOTS.

* See *The Occurrence of Petroleum in Burma*, by Dr. F. Noetling.